IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

SKYLINE SOFTWARE SYSTEMS, INC.,

          Plaintiff,

   v.

KEYHOLE, INC., and
GOOGLE INC.

          Defendants.

CIVIL ACTION NOS. 04-11129 DPW &
06-10980 DPW

DEFENDANTS' OPENING CLAIM CONSTRUCTION BRIEF

PUBLIC REDACTED VERSION

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I.   **INTRODUCTION**

The Federal Circuit has made clear that claim construction begins and remains focused on the words of the claim. *Research Plastics, Inc. v. Federal Packaging Corp.*, 421 F.3d 1290, 1295 (Fed. Cir. 2005); *Interactive Gift Express, Inc. v. CompuServe Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001). The words are to be accorded their ordinary and customary meaning in the context of the patent. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005). Google proposes claim constructions that accord the '189 patent terms their ordinary meaning as understood by a person skilled in the relevant art, as demonstrated by the words of the claims, the specification and the prosecution history. Google's constructions, furthermore, are consistent with, and uphold this Court's prior construction of terms used in claims 1 and 12 of the '189 patent. For example, Google's proposed construction of "receiving from the renderer" as "an object other than the renderer receiving from the renderer" is based upon this Court's (and the specification's) recognition that the '189 patent renderer is a separate object.

In contrast, Skyline proposes constructions that either ignore words in the claims or deviate from the ordinary and customary meaning of words without any support from the intrinsic evidence. Other times, Skyline asserts that no construction is needed and does not propose any construction, hoping to ignore the context of the claimed invention as set out in the patent specification and as admitted by inventor testimony. Such proposals do not comport with well-established claim construction principles. *E.g., Phillips*, 415 F.3d at 1312-1319.

For example, Skyline proposes a construction of the phrase "plurality of coordinates being included in a plurality of respective distinct blocks" in claim 3 of the '189 patent that completely ignores the words "respective" and "distinct," effectively reading those limitations out of the claim. *Exxon Chemical Patents, Inc. v. Lubrizol*, 64 F.3d 1553, 1557 (Fed. Cir. 1995) (finding that a construction that reads out limitations from a claim is improper).

Skyline also asks the Court to construe "substantially all the blocks *surrounding* a point in the terrain seen from the current viewpoint within a predetermined distance range" as blocks in "one or more directions" from the viewpoint. The plain meaning of "surrounding" and the

patent specification, however, establish that the claim language covers blocks in all directions from the viewpoint. Skyline's out-of-context constructions at odds with the specification should not be adopted. *Phillips*, 415 F.3d at 1316 (claims to be construed consistent with the patent specification).

Google's proposed constructions are the only ones that comport with established law and the Court should therefore adopt them.

II.   FACTUAL BACKGROUND

A.   The '189 Patent Invention

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Rather, in his own words, ████████████████████████████

██████████████████████████. Chang Decl., Ex. J at 107:13-16, 129:1-7.[1]

The '189 patent, entitled "Remote Landscape Display and Pilot Training," thus discloses methods and apparatuses directed to a *particular* way of "providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure." *E.g.*, '189 patent, claim 1 at col. 16:20-30, claim 3 at col. 16:51-54, claim 7 at col. 17:42-44, claim 12 at col. 18:12-14, claim 13 at 18:31-33, and claim 18 at col. 20:4-6.

To that end, all of the claims of the '189 patent contain the same core limitations.[2] First, each and every claim requires "receiving from the renderer" a request for data by their coordinates and an indicated resolution level. *E.g.*, *id.*, claim 1 at col. 16:32-33, claim 3 at col. 16:55-56, claim 7 at col. 17:46-47, claim 12 at col. 18:21-23, claim 13 at col. 18:41-43, and

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[1] ██

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[2] In fact, all of the issued claims of the '189 patent were originally drafted as claims depending from the same independent claim "core," consisting of one method claim and an apparatus performing the method. '189 patent File History, Declaration of Carolyn Chang in Support of Defendants' Opening Claim Construction Brief ("Chang Decl."), Ex. A at 31-38 (see original claim 1 and original claim 31). While later split into further independent claims, the various issued claims of the '189 patent still include the same core, with different embodiments of the invention having their own specific limitations in addition to these core limitations.

claim 18 at col. 20:14-16. Each of the data blocks in the hierarchical structure is referenced by coordinates corresponding to one of the terrain points contained in the data block. *Id.* at col. 9:25-39. The renderer of the '189 patent thus requests specific data blocks that it needs to display a particular image, requesting them by the coordinates in the terrain and a respective resolution level. *Id.* at col. 11:21-30.

Second, in response to the renderer's request, a first data block corresponding to the specified coordinates is provided from the local memory of the user's computer. *Id.* at col. 3:58-61; 11:62-65. Thus, all of the claims further require "providing the renderer with a first data block" corresponding to the coordinates from local memory. *E.g., id.,* claim 1 at 16:36-38, claim 3 at col. 16:59-61, claim 7 at col. 17:49-51, claim 12 at col. 18:24-26, claim 13 at col. 18:43-45, and claim 18 at col. 20:16-18. As a result, the invention claimed by the '189 patent avoids having to download data blocks from a remote sever if the data block with the indicated resolution level is available in local memory. *Id.* at cols. 3:50-53, 60-61; 11:62-64.

If, however, the first data block is determined not to be at the resolution level indicated by the renderer, the invention claimed by the '189 patent will retrieve additional data blocks from a remote server. Conditioning the download of additional data blocks from a remote server upon a determination that the data block from local memory was not at the indicated resolution level was a feature emphasized by the applicants during prosecution of the '189 patent application in distinguishing the invention from prior art. *See* '189 patent File History, Oct. 4, 2001 Amendment, Ex. B to Chang Decl., at 3. All of the claims also thus require "downloading from a remote server one or more additional data blocks … if the first block from local memory is not at the indicated resolution level." *E.g.,* '189 patent, claim 1 at col. 16:39-44, claim 3 at col. 16:62-66, claim 7 at col. 17:53-57, claim 12 at col. 18:27-31, claim 13 at col. 18:46-51, and claim 18 at col. 20:19-21.

At its core, the claimed invention thus (1) has a renderer that specifies the blocks it needs by providing coordinates and resolution level; (2) provides to the renderer a first data block from local memory corresponding to the coordinates; and (3) downloads additional corresponding

blocks from a remote server if the first data block is determined not to be at the indicated resolution level. Each of the issued claims represents an iterative embodiment of the same invention, containing these same core limitations plus an additional feature so as to distinguish them from one another.

For example, method claim 1 (and apparatus claim 12) of the '189 patent requires in addition to the core limitations that the one or more additional data blocks downloaded from the remote server be of a higher resolution than the first data block provided from local memory. '189 patent, claim 1 at col. 16:39-40. Claim 2 depends from claim 1 and further requires that the download of the higher resolution data blocks be "from a succession of resolution levels." *Id.*, claim 2 at col. 16:47. Method claim 7 (and apparatus claim 18) and its dependent claims do not recite these "higher resolution" and "succession" limitations, but instead require the download of "excess blocks not currently needed by the renderer to fill up the local memory when not downloading blocks required by the renderer." *E.g.*, '189 patent, claim 7 at col. 17:58-61. Other claims specify that, in addition to the core limitations, the download of additional data blocks be performed in a particular order. *E.g.*, *id.*, claim 3 at col. 16:66-67 ("lower resolution levels downloaded before higher resolution levels"), claim 16 at col. 19:42-43 ("according to the order in which the coordinates were provided").

Skyline has identified claims 2-3, 7-9, 11, 13-14, 16, 18-19 and 21-24 as asserted claims in this lawsuit in addition to claims 1 and 12, whose claim terms have already been construed by the Court. Chang Decl., Ex. D. The parties agree that corresponding apparatus claims 18, 19, 21, and 22 are the apparatuses that perform the methods of, and contain the same limitations as, claims 7, 9, 11, and 8, respectively. *Id.* ¶ 6, Ex. E. For the reasons discussed herein, the Court should adopt Google's proposed constructions for the disputed terms of these additional claims.

III.   CLAIM CONSTRUCTION STANDARDS

Claim construction begins with the language of the claims. *Research Plastics, Inc. v. Federal Packaging Corp.*, 421 F.3d 1290, 1295 (Fed. Cir. 2005). "The words of a claim are generally to be accorded their 'ordinary and customary meaning,' which is 'the meaning that the

term would have to a person of ordinary skill in the art in question at the time of the invention.'"

Id., quoting Phillips, 415 F.3d at 1314.

If the ordinary meaning of terms is not readily apparent, courts look to sources that show what a person of skill in the art would have understood disputed claim language to mean, including "the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." *Phillips*, 415 F.3d at 1314, *quoting Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004).

The specification is always highly relevant to claim construction. *Phillips*, 415 F.3d at 1315-17. Claim terms can be defined only in ways that comport with, and are consistent with, the specification as a whole. *See Phillips*, 415 F.3d at 1316, *citing Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 389 (1996); *Merck & Co. v. Teva Pharms. USA, Inc.*, 347 F.3d 1367, 1371 (Fed. Cir. 2003). A statement in the specification attesting to the importance of a particular feature to the patented invention may mandate the inclusion of the feature in the claimed invention. *SciMed Life Sys. v. Advanced Cardiovascular Sys.*, 242 F.3d 1337, 1342 (Fed. Cir. 2001); *Toro Co. v. White Consol. Indus.*, 199 F.3d 1295, 1302 (Fed. Cir. 1999). When construing claims, courts should also consider the prosecution history, which often demonstrates how the inventor understood the invention. *Phillips*, 415 F.3d at 1317. Explicit statements made by a patent applicant during prosecution to distinguish a claimed invention over prior art may serve to narrow the scope of a claim. *Southwall Techs. Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995).

Courts may also look to extrinsic evidence, "which consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." *Phillips*, 415 F.3d at 1317, *quoting Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995). Expert testimony "can be useful for a variety of purposes, such as to provide background on the technology at issue, to explain how an invention works, to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person

of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field." *Phillips*, 415 F.3d at 1318.

An inventor's self-serving statements generally are to be disregarded. *Bell & Howell Document. Mgmt. Prods. Co. v. Altek Sys.*, 132 F.3d 701, 706 (Fed. Cir. 1997) (inventor testimony "often is a self-serving, after-the-fact attempt to state what should have been part of his or her patent application."); *Senmed, Inc. v. Richard-Allan Medical Indus., Inc.*, 888 F.2d 815, 819 (Fed. Cir. 1989) ("[A]n inventor may not be heard to proffer an interpretation that would alter the undisputed public record (claim, specification, prosecution history) and treat the claim as a 'nose of wax.'"). By contrast, an inventor's admissions against the patentee's interest has been called "the best and most reliable form of extrinsic evidence." *Evans Med. v. American Cyanamid Co.*, 11 F. Supp. 2d 338, 351 (S.D.N.Y. 1998), *aff'd*, 215 F.3d 1347 (1999).

In its March 24, 2006 Memorandum and Order ("Claim Construction Order"), the Court construed several terms of claims 1 and 12 of the '189 patent. It is presumed that claim terms are used consistently throughout the patent, and usage of a term in one claim can often illuminate the meaning of the same term in other claims. *Phillips*, 415 F.3d at 1314; *see also Inverness Medical Switzerland GmbH v. Princeton Biomeditech Corp.*, 309 F.3d 1365, 1371 (Fed. Cir. 2002) ("A claim term used in multiple claims should be construed consistently"); *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001). The Claim Construction Order provides constructions for twelve terms, including "coordinates in the terrain," "resolution level," "renderer," and "communication link." To the extent those same terms appear in other claims of the '189 patent, they should be consistently construed.[3] The remaining disputed terms for claims other than claims 1 and 12 are construed below.

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[3] The parties met and conferred over claim construction in an effort to reach agreement and reduce the number claim terms that need be addressed at this time. In the course of those discussions, neither party has indicated that it is at this juncture challenging the Court's prior constructions, nor would that be appropriate. *See* Fed. R. Civ. P. 59 and 60.

IV.   GOOGLE'S PROPOSED CLAIM CONSTRUCTIONS

A.   Disputed Terms Used Throughout All the '189 Patent Claims

1.   "downloading"

Google's Proposed Construction	Skyline's Proposed Construction
"downloading"	
requesting over a network and receiving in local memory from a separate computer	transferring from a remote server to a local computer

Each of the claims of the '189 patent includes the limitation of *"**downloading**"* data from a remote server. In particular, each of the method claims requires *"downloading* from a remote server one or more additional data blocks." '189 patent, claim 1 at col. 16:39, claim 3 at col. 16:62; claim 4 at col. 17:13, claim 5 at col. 17:33, and claim 7 at col. 17:53 (emphasis added). Each of the apparatus claims furthermore requires "a processor which . . . *downloads* [data blocks] over the communication link." *Id.*, claim 12 at col. 18:27-28, claim 13 at col. 18:46-47, claim 14 at col. 18:66-67, claim 15 at col. 19:19-20, claim 16 at col. 19:41-42, and claim 18 at col. 20:19-20 (emphasis added).

"Downloading" should be construed in accordance with its ordinary meaning as understood by one skilled in the art. *Phillips*, 415 F.3d at 1312-13 (stating that the words of a claim "are generally given their ordinary and customary meaning"). In the context of the '189 patent invention, one of ordinary skill in the art would understand *"**downloading**"* to mean *"**requesting over a network and receiving in local memory from a separate computer.**" See* Declaration of Professor Steven K. Feiner, Ph.D. in Support of Defendants' Opening Claim Construction Brief ("Feiner Decl.") ¶ 15.

One of the invention's core functions is supplying a first data block to the renderer from local memory, and then, if upon determination that the first block is not at the level of resolution indicated by the renderer, downloading additional corresponding blocks so that the renderer may make use of them. *See* '189 patent at cols. 11:62-53; 14:27-46. As such, "downloading" is ineffectual if the additional data blocks are not received in local memory as well as requested.

Google's proposed construction requiring both a request and the receipt of the data block in local memory is supported by the '189 patent specification, which explains, "[w]hen cache manager **74** finishes downloading an additional block of a higher resolution level from server **26**, the block is provided to renderer **72**, which updates the rendered view accordingly." *Id.* at col. 12:66-13:2; *see also* Feiner Decl. ¶ 16.

The specification thus makes clear that "downloading" is not completed until the requested data block is received by the local memory of the user's computer. Otherwise, the data block could not be used by the renderer to update the view. Feiner Decl. ¶¶ 16-17. In discussing the download of successive additional blocks, the specification further explains that the additional blocks are not "downloaded" until after prior blocks have been received in local memory: "cache manager **74** preferably always requests that server **26** send a block **42** after the cache manager *has received* its parent block." '189 patent at col. 12:5-7 (italics added). In fact, the specification goes on to explain that "[a]s the blocks are *received from* the server, they are supplied to renderer **72**," intrinsically suggesting that the download of data blocks requires receipt by the local computer. *Id.* at col. 14:44-46 (italics added). Thus, according to the context of the invention as set forth in the specification, "downloading" requires that the data blocks be *received* as well as requested. Feiner Decl. ¶¶ 16-17.

Skyline proposes an ambiguous construction of "downloading" as merely "transferring" data from a remote server to a local computer. This construction omits reciting the "receiving" function, is unclear, and risks overly broad interpretations of the patent that are inconsistent with the teachings of the patent specification. In particular, without specifying that the data block from the remote server must be received by the local computer, Skyline's construction could be interpreted to cover situations in which the data block is only *sent* by the remote server but never actually received for use by the renderer. Such an interpretation is at odds not only with the specification but the purpose of the patent to display terrain on a user's computer. '189 patent at col. 1:11-13; *see* Feiner Decl. ¶ 18. If the requested data blocks are never received by the user's computer, they cannot be used by the renderer to display the terrain or update the view. *See*

Feiner Decl. ¶ 18; '189 patent at col. 12:66-13:2.

Accordingly, the Court should adopt Google's proposed construction of *"downloading"* as *"requesting over a network and receiving in local memory from a separate computer."*

2.   "receiving from the renderer" and "providing the renderer"

Google's Proposed Construction	Skyline's Proposed Construction
"receiving from the renderer" or "receives . . . from a renderer"	
an object other than the renderer receiving [or receives] from the renderer	no construction needed
"providing the renderer" or "provide the renderer"	
an object other than the render providing the renderer	no construction needed

The '189 patent does not broadly claim every method of downloading terrain data from a remote server to a local computer. Chang Decl., Ex. J at 111-112. Even putting aside whether such a broadly claimed patent would have been valid in the 1999 time frame, were the claimed invention to include all methods of downloading terrain data, one would not need to describe a renderer at all and literally just claim the function of "downloading terrain data from a remote server to a local computer" in so many words.

Instead, the patent discloses a particular type of "renderer" and treats it as a discrete object so as to claim a particular method of providing terrain data. For example, the "renderer" of the '189 patent is depicted in Fig. 5 of the patent as discrete object 72, represented and bounded by an oval so as to distinguish it from other objects. The text of the specification similarly and consistently treats the renderer as a discrete object. *E.g.,* '189 patent at cols. 3:54-67 ("In some preferred embodiments of the present invention, the processor runs a rendering program . . . . The rendering program orders the blocks it needs using a cache manager"); 11:21-24 ("Renderer **72** determines the coordinates of the pixels it needs in order to render the view and requests the descriptions of these pixels from a cache manager **74**").

Treating the renderer as a discrete object provides a point of reference and framework for the renderer's interactions with other objects, so as to disclose and claim a particular method of supplying the renderer with terrain data. The patent sets the renderer apart from other objects to

create a paradigm in which certain things (*e.g.*, coordinates and resolution level) are *received from the renderer* by other objects, and certain other things (*e.g.*, the corresponding first data block from local memory, and additional data blocks from a remote server) are *provided to the renderer* by other objects. Dividing the world into "renderer" and "not renderer" not only defines the scope of the claimed invention but prevents the patentee from improperly treating the claims as a "nose of wax" and expanding the scope of the patent beyond what was actually invented. *See Senmed,* at 819.

To properly construe the patent and set its boundaries, "***receiving from the renderer***" thus must mean that "***an object other than the renderer receives from the renderer.***" Likewise, "***providing the renderer***" must mean "***an object other than the renderer provides the renderer.***" Such is how one of ordinary skill in the art would understand these terms (Feiner Decl. ¶ 19) and such is necessary to preclude the patentee from treating this limitation as no limitation at all. Absent such a boundary, there would be no point of reference and no framework, allowing the patent more broadly to read on methods of downloading of terrain data far beyond the scope of the actual invention.[4] For example, if the renderer limitation could be met not only by the renderer providing coordinates and resolution to another object, but also to itself, then every object is at the same time both a renderer and not a renderer, making it impossible to discern any scope to the patent except to be inclusive of every possible object.

Skyline does not propose a competing construction for these terms, and instead purports to rely on the plain meaning of the claim language. This does not resolve the disputed issue, and the plain meaning of the words actually supports Google's proposed construction. Indeed, the Court has already recognized that the "receiving from the renderer" language means that the '189 patent renderer provides coordinates and a resolution level to another object. *See* Claim Construction Order at 26-32 (construing "renderer" to mean, in part, a software and/or hardware objects that determines and provides *to another object* the required coordinates in the terrain along with a respective resolution level); *see also* Feiner Decl. ¶ 20. This understanding is based

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[4] *See* n.1, *supra*.

upon the '189 patent specification, which states "[r]enderer **72** determines the coordinates of the pixels it needs in order to render the view and requests the descriptions of these pixels from a cache manager **74**." '189 patent at col. 11:21-24; *see also* Claim Construction Order at 31. "Preferably, renderer **72** determines the exact blocks needed and calls for them using their (x,y) coordinates and their resolution level **44**. Alternatively, or additionally, renderer **72** specifies, for each resolution level **44**, the coordinates of the boundaries of the necessary areas, and cache manager **74** determines the identities of the required blocks **42**. " '189 patent at col. 14:10-16; *see also* Feiner Decl. ¶ 21; Claim Construction Order at 29. The Court understood that in any embodiment of the invention, the renderer specifies to *another object* what coordinates are required along with identifying the respective resolution level. Claim Construction Order at 32; Feiner Decl. ¶ 21. Even Skyline principal and named inventor Ronnie Yaron admitted that he could not think of a way in which the renderer could be provided with a data block corresponding to certain coordinates without the renderer providing those coordinates to some other object. Whether the determination of what data blocks are needed is made by the renderer or by the cache manager, ███

███. Chang Decl., Ex. J at 117:3-120:5; 128:2-129:7; *Evans Med.*, 11 F. Supp. 2d at 351.

The specification likewise makes clear that it is another object that provides the renderer with a first data block from local memory. Feiner Decl. ¶ 22. The specification explains that "the rendering program orders the blocks it needs using a cache manager, which is preferably a software routine running on the processor. If the cache manager has the ordered block, it provides it to the rendering program." '189 patent at col. 3:57-61; *see also* Feiner Decl. ¶ 22; Claim Construction Order at 27-28.

Google's proposed construction is consistent with the claim language, the patent specification, the Court's prior claim construction and named inventor Yaron's own admissions. Google's construction provides the necessary and proper scope of the claimed invention, while Skyline's non-construction provides no scope or framework at all, and fails to resolve the

dispute. As Skyline does not offer its own proposed construction, this Court should adopt the proper construction of these terms as "*an object other than the renderer receives from the renderer*" and "*an object other than the renderer provides the renderer.*"

3. "downloading ... if the provided block from the local memory is not at the indicated resolution level"

Google's Proposed Construction	Skyline's Proposed Construction
"downloading ... if the provided block from the local memory is not at the indicated resolution level" or "downloads ... if the first block is not from the indicated resolution level"	
downloading (*i.e.*, requesting over a network and receiving in local memory from a separate computer) . . . upon a determination of whether the first data block is not of the indicated resolution level	downloading (*i.e.*, transferring from a remote server to a local computer) . . . when the first data block is not at the indicated resolution level

Each claim of the '189 patent includes the limitation of downloading additional data blocks from a remote server if the first data block provided from local memory is not at the indicated resolution level. *E.g.*, '189 patent, claim 1 at col. 16:39-44, claim 3 at col. 16:62-66, claim 7 at col. 17:53-57, claim 12 at col. 18:27-31, claim 13 at col. 18:46-51, and claim 18 at col. 20:19-21. The "*downloading ... if the provided block from the local memory is not at the indicated resolution level*" phrase as a whole would be understood by one of ordinary skill in the art to mean "*downloading ... upon a determination of whether the first data block is not of the indicated level of detail per unit area.*" Feiner Decl. ¶ 23.

The claims recite the downloading step as conditional, occurring "*if* the provided data block from local memory is not at the indicated resolution level" or "*if* the first block is not from the indicated level." *See e.g.*, '189 patent, claim 7 and claim 18; Feiner Decl. ¶ 24. Because the context of the invention is a computer, the computer must make some determination to ascertain whether the condition is met. Feiner Decl. ¶ 25. A computer cannot simply "know" whether some factual condition exists; it must make a determination of that fact. *See id* ▮▮▮▮▮▮▮▮

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Google's proposed construction is furthermore based on and consistent with the disclosures in the specification, which explains that, "[if] the cache manager has the ordered block, it provides it to the rendering program. However, *if the block is not carried by the cache manager, it is ordered from the server.*" '189 patent at col. 3:60-64 (emphasis added). Additionally, "[c]ache manager **74** downloads from server **26** the blocks **42** and/or sub-blocks **43** required by renderer **72**, *if they are not already stored in cache memory.*" '189 patent col. 11:62-65 (italics added). In particular, the specification states that "[w]hen a request for block **150**, identified as 'x,' and having resolution level N, is received from renderer **72**, cache manager **74** determines [] the level j of the highest resolution-level ancestor of block x stored in cache memory **32**." *Id.* at col. 14:32-35. "If block **42** itself is stored in cache memory **32** (i.e., J=N), the block is provided to renderer **72**. *Otherwise*, the highest resolution level ancestor **152** of block x which is stored in cache memory **32** is provided to renderer **72**." *Id.* at col. 14:36-42. The specification further explains "[*i*]*f* block x itself was not found in memory **32**, cache manager **74** adds to a download queue the block x and all its ancestors **158** of resolution levels higher than level j." *Id.* at col. 14:65-67 (italics added). Accordingly, the patent specification recognizes that a determination has to be made as to whether the first block from local memory is not at the indicated resolution before appropriate action can be taken. Feiner Decl. ¶ 26.

Skyline asks the Court to construe the phrase to mean simply "downloading . . . when the first data block provided from local memory is not at the indicated resolution level." Skyline disputes that a determination of the condition is required, changing, if not reading out entirely, the conditional "if" language from the claims. *See* Feiner Decl. ¶ 25. This is improper because during prosecution of the '189 patent, it was this condition that the applicants highlighted as distinguishing their invention from the prior art. *Spectrum Int'l, Inc. v. Sterilite Corp.*, 164 F.3d 1372, 1378-79 (Fed. Cir. 1998) (stating that an applicants' statement made in distinguishing the claimed invention over the prior art indicates what the claims do not cover); '189 patent file history at Chang Decl., Ex. B at 3 (stating that the prior art "fails to teach downloading additional blocks from a remote server *if blocks at the required resolution level are not present on the local*

memory" (emphasis added).) In addition, as discussed above, the specification makes clear that the download of additional data blocks from the remote server is conditioned upon the first data block from local memory not being at the indicated resolution level. Only upon the computer's determination of this condition can additional data blocks be downloaded, as the computer has no other way to "know" whether this condition exists. Feiner Decl. ¶ 25.

Skyline's proposed construction ignores both the specification and the prosecution history, while Google's proposed construction is faithful to the intrinsic evidence. Accordingly, this Court should construe "*downloading . . . if the provided block from the local memory is not at the indicated resolution level*" to mean "*downloading . . . upon a determination of whether the first data block is not of the indicated level of detail per unit area.*"

B.   Disputed Terms of Claim 2 of the '189 Patent

1.   "succession of resolution levels"

Google's Proposed Construction	Skyline's Proposed Construction
"succession of resolution levels"	
in order of increasing resolution level	no construction needed

Claim 2 of the '189 patent depends from independent claim 1, and further requires that the data blocks downloaded from the remote server are downloaded from a "*succession of resolution levels.*" '189 patent at col. 16:47. The rest of claim 2 recites, "*from* the level immediately higher than the resolution level of the first block *up to the maximal existent resolution level* on the server not above the indicated resolution level." Read in this context, as well as in the context of the rest of the '189 patent, this phrase is properly construed as "*in order of increasing resolution level.*" Feiner Decl. ¶ 27. One cannot go "from" some level "up" to a maximal level without doing so in order of increasing resolution level.

Google's construction comports not only with the context of Claim 2's language, but with the ordinary meaning of the word "successive," which denotes a particular order or sequence. Chang Decl., Ex. F. This understanding of the term is further supported by the '189 patent specification, which describes embodiments in which higher resolution data blocks always are

downloaded after receiving lower resolution data blocks. *See* '189 patent at col. 12:5-7 ("cache manager **74** preferably always requests that server **26** send a block **42** after the cache manager has received its parent block"); *see also* Feiner Decl. ¶ 28. In particular, the specification explains that "cache manager **74** downloads the rest of the ancestors **158** of block x from server **26** *in order of increasing resolution levels.*" *Id.* at col. 14:40-42 (italics added).

The prosecution history makes clear that this description is applicable to the "succession of resolution levels" language in claim 2. Specifically, in response to an obviousness objection, the applicants repeatedly emphasized that the cited prior art, unlike claim 2 (which was originally drafted as claim 4 in the '189 patent application), did not disclose "a downloading order based on resolution levels" and did not require a download order "from the lowest resolution to the highest resolution." Chang Decl., Ex. B at 3; *see also* Ex. C at 11. The applicants' statements establish that "*succession of resolution levels*" refers to downloading data blocks "*in order of increasing resolution level.*" *See* Feiner Decl. ¶ 29.

Skyline does not provide an alternate construction for this term. As Google's construction adopts the ordinary meaning of the term and is supported by the intrinsic evidence, the Court should adopt Google's proposed construction.

C. Disputed Terms of Claim 3 of the '189 Patent

1. **"plurality of coordinates being included in a plurality of respective distinct blocks"**

Google's Proposed Construction	Skyline's Proposed Construction
"plurality of coordinates being included in a plurality of respective distinct blocks"	
each one of the plural sets of coordinates being included in a separate distinct one of a plurality of data blocks describing three-dimensional terrain	more than one set of coordinates being described by the data contained in more than one data block

Claim 3 of the '189 patent claims a method wherein the renderer provides a "plurality of coordinates in the terrain along with indication of a respective resolution level." '189 patent, claim 3 at col. 16:55-56. The claim further specifies "*said plurality of coordinates being included in a plurality of respective distinct blocks.*" *Id.* at col. 16:56-58 (emphasis added).

The claim language itself makes clear that each set of coordinates corresponds to each respective block, so that the phrase should be construed as *"each one of the plural sets of coordinates being included in a separate distinct one of a plurality of data blocks describing three-dimensional terrain."*

In contrast, Skyline proposes that the phrase be construed as "more than one set of coordinates being described by the data contained in more than one data block." Thus, the dispute centers on whether or not there is a one-to-one correspondence between one particular set of coordinates (among the plurality of coordinates) and a particular respective data block (among the plurality of data blocks), as the claim language itself indicates.

It is well-established that in construing claims, "the analytical focus must begin and remain centered on the language of the claims themselves." *Interactive Gift Express*, 256 F.3d at 1331; *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). Here, the claim language is determinative. The claim language makes clear that the plurality of coordinates are included in *respective* and *distinct* data blocks. "Respective" is ordinarily understood to mean, "particular, separate." Chang Decl., Ex. G. Meanwhile, "distinct" means "distinguishable as discrete, separate." *Id.*, Ex. H.

Only Google's proposed construction takes into account the meaning of all the words in the claim, acknowledging that each of the coordinates is included in a specific individual data block among the plurality of data blocks. Skyline's proposed construction that the many coordinates simply be described by more than one data block makes no distinction between a phrase that says "said plurality of coordinates being included in a plurality of blocks," and the actual claim language which requires "said plurality of coordinates being included in a plurality of *respective distinct* blocks." As a result, Skyline's construction effectively reads the words "respective" and "distinct" out of the claim, a result that is strongly disfavored. *Exxon Chemical Patents*, 64 F.3d at 1557 (recognizing that meaning must be given to all the words in the claims); *see also Playtex Prods. Inc. v. Proctor & Gamble Co.*, 400 F.3d 901, 909-10 (Fed. Cir. 2005) (finding claim construction was flawed in part because it read "substantially flattened" as "flat,"

effectively ignoring the "substantially" language in the claim).

Because Google's construction is the only one that properly gives meaning to all the words of the claim, this Court should adopt its construction of *"said plurality of coordinates being included in a plurality of respective distinct blocks"* as *"each one of the plural sets of coordinates being included in a separate distinct one of a plurality of data blocks describing three-dimensional terrain."*

D.   Disputed Terms of Claims 7 and 18 of the '189 Patent (and Their Dependent Claims)

1.   "when not downloading blocks required by the renderer"

Google's Proposed Construction	Skyline's Proposed Construction
"when not downloading blocks required by the renderer"	
during periods of time when the local computer is not downloading data blocks describing three-dimensional terrain in response to the coordinates received from the renderer	when not downloading data for the display of the current view

Method claim 7 and apparatus claim 18 (and the claims that depend from them) include the additional limitation of "downloading from a remote server excess blocks not currently needed by the renderer to fill up the local memory *when not downloading blocks required by the renderer." E.g.,* '189 patent, claim 7 at col. 17:58-61, and claim 18 at col. 20:22-24. At the core of the '189 patent, data blocks are provided to the renderer that the renderer requests by coordinates and specified level of resolution. The data blocks first come from local memory and then upon a determination concerning the resolution of the first block, from a remote server, also according to the renderer's request. During periods when the renderer's requests are not being made or fulfilled, the computer could be idle. Per claims 7 and 18, the computer could also be doing other things such as filling the memory with excess blocks, so as to have additional terrain data on hand in case there is a change in the viewpoint (such as the user selecting a viewpoint of interest instead of being limited to pre-chosen viewpoints selected by others, *e.g.,* '189 patent at col. 10:58-60; 11:11-16). *See* '189 patent at col. 15:60-67.

Given this context, the *"when not downloading blocks required by the renderer"* phrase

is properly construed as *"**during periods of time when the local computer is not downloading data blocks describing three-dimensional terrain in response to the coordinates received from the renderer**.*" Feiner Decl. ¶ 30. This construction is supported by the intrinsic evidence. The specification explains that "[w]hen a request for block **150**, identified as "x," and having resolution level N, is received from renderer **72**, cache manager **74** determines [] the level j of the highest resolution-level ancestor of block x stored in cache memory **32**." '189 patent at col. 14:32-35. If the requested block is not in local memory, "cache manager **74** adds to a download queue the [required block] and all its ancestors **158** of resolution levels higher than [the first block from local memory]." '189 patent at cols. 14:65-67. The "cache manager **74** maintains a list of blocks for which download orders were sent, and therefore are *needed by renderer* **72**." *Id.* at col. 15:39-41 (italics added). "If renderer **72** needs the downloaded block (i.e., it was not ordered solely to fill cache memory **32**, as described herein below), it is passed to the renderer." *Id.* at col. 15:47-49. "If the download queue is not empty, a block from the queue is downloaded." *Id.* at col. 15:60-61. Thus, the specification explains that data blocks required by the renderer are added to a download queue in response to the coordinates and a resolution level received from the renderer. Feiner Decl. ¶ 31.

The specification goes on to describe the download of excess data blocks in accordance with claims 7 and 18 and their dependent claims, stating that "if the queue is empty, cache manager **74** fills cache memory **32** with the blocks within the range of the current viewpoint." *Id.* at col. 15:63-64. Therefore, excess data blocks are downloaded only when the download queue is empty; that is, when the local computer is not downloading data blocks in response to the coordinates provided by the renderer. Feiner Decl. ¶ 32.

Google's proposed construction is consistent with the specification and the embodiments described in the '189 patent. In contrast, Skyline proposes a construction that contradicts the intrinsic evidence. Skyline argues that "when not downloading blocks required by the renderer" means "when not downloading data for the display of the current view," defining data blocks required by the renderer as data needed for the display of the current view. Not only is this

construction inconsistent with the specification's description of the invention, it cannot be reconciled with other claims of the patent.

For example, claim 1 of the '189 patent, which claims downloading from a remote server additional higher resolution data blocks corresponding to the coordinates received from the renderer, contemplates downloading data not needed for the current view. '189 patent at col. 16:39-44. Claim 1 is clearly broad enough to encompass downloading data blocks at a resolution level higher than the indicated resolution level (*i.e.*, data not needed for the current view) as its dependent claim 2 is limited to downloading data blocks not above the indicated resolution level. *Id.* at col. 16:45-50; *RF Delaware, Inc. v. Pacific Keystone Techs., Inc.*, 326 F.3d 1225, 1264 (Fed. Cir. 2003) (stating that an independent claim usually covers a scope broader than its dependent claims). Accepting Skyline's proposed construction would render claim 1's download of data blocks not needed for the current view the same as claim 7's "downloading of excess blocks not currently needed by the renderer . . . when not downloading blocks required by the renderer" limitation, eliminating much of the difference between the two claims. Feiner Decl. ¶ 33. Such a result is improper. *See Kraft Foods, Inc. v. International Trading Co.*, 203 F.3d 1362, 1366-67 (Fed. Cir. 2000) (recognizing that under the doctrine of claim differentiation, two claims of a patent should be construed to be of a different scope).

In addition, even when a data block needed for the current view is downloaded, that data block may also contain additional data that is not needed for the display of the current view. Indeed, the '189 patent specification recognizes that an entire data block may not be required to display a particular view. '189 patent at col. 8:29-32 ("Preferably, the blocks are divided into sub-blocks **43** of smaller sizes, such that processors which work with slow modems may download small sub-blocks in case the entire block is not required"). The specification also explains that "[p]referably, each sub-block **43** includes an attachment field in which optional data objects associated with the area covered by the sub-block are described." *Id.* at col. 8:38-40. Thus, these optional data blocks will be downloaded even if they are not needed for display of the current view. Construing "when not downloading blocks required by the renderer" as "when

not downloading data for the display of the current view," as Skyline proposes, thus would eliminate the difference between the limitation of claim 7 and the "downloading" claimed in the other claims of the '189 patent for this reason, as well.

Google's proposed construction maintains the integrity of each of the claims of the '189 patent and is supported by the patent specification. Therefore, *"when not downloading blocks required by the renderer"* is properly construed as *"during periods of time when the local computer is not downloading data blocks describing three-dimensional terrain in response to the coordinates received from the renderer.*

2.   "Internet"

Google's Proposed Construction	Skyline's Proposed Construction
"Internet"	
publicly accessible network capable of relaying information via Internet Protocol, either alone or in connection with one or more other protocols.	the publicly accessible world-wide network of that name, which is capable of relaying information via a TCP connection, but not including private networks even if they use internet protocols or have connections to the Internet

Method claim 8 and apparatus claim 22 further require that the download of excess data blocks be performed via the Internet. '189 patent, claim 8 at col. 17:62-64. One of ordinary skill in the art would understand *"Internet"* in the context of the '189 patent to mean *"publicly accessible network capable of relaying information via Internet Protocol, either alone or in connection with one or more other protocols.*" Feiner Decl. ¶ 35.

The specification states that "[p]referably, the processor connects to the server via a communication link, preferably a public network, such as the Internet." '189 patent at col. 2:33-35. Indeed, "Internet" is defined as "[t]he worldwide collection of networks and gateways that use the TCP/IP suit of protocols to communicate with one another." Chang Decl., Ex. K. This understanding is consistent with the '189 patent specification's explanation that "[c]onnections 76 are preferably standard TCP connections as are known in the art, although any other protocol may be used to form the connection." '189 patent at col. 12:10-12. A TCP connection is a connection using a core Internet Protocol and is often referred to also as a TCP/IP (Transmission

Control Protocol/Internet Protocol) connection. Feiner Decl. ¶ 36; *see also* Chang Decl., Ex. L (defining TCP/IP as a protocol that has "become the de facto standard for data transmission over networks, including the Internet"). Thus, Google's proposed construction is supported by the ordinary meaning as understood by one of skill in the art, and by the disclosures in the patent specification. Feiner Decl. ¶ 36.

Skyline proposes a construction of "Internet" that is limited to "the publicly accessible world-wide network [] capable of relaying information via a TCP connection, *but not including private networks* even if they use internet protocols or have connections to the Internet." There is, however, no support whatsoever for Skyline's exclusion of private networks that may use the TCP/IP communications protocol and may be connected to the Internet. Feiner Decl. ¶ 37. Skyline's attempt to import an unsupported limitation should be rejected. *Hognanas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 950 (Fed. Cir. 1993) ("It is improper for a court to add 'extraneous' limitations to a claim").

Accordingly, the Court should adopt the correct construction of "***Internet***" as "***a network capable of relaying information via Internet Protocol, either alone or in connection with one or more other protocols.***"

3.   **"substantially all the blocks surrounding a point in the terrain seen from the current viewpoint within a predetermined distance range"**

Google's Proposed Construction	Skyline's Proposed Construction
"substantially all the blocks surrounding a point in the terrain seen from the current viewpoint within a predetermined distance range"	
substantially all of the excess data blocks describing three-dimensional terrain on all sides (in all directions) out to a pre-established distance from a point in the terrain that is seen from the current viewpoint	substantially all of the blocks which include data covering terrain which is within a predetermined distance range in one or more directions from either the viewpoint or a point in the terrain visible from the current viewpoint

As discussed above, Claims 7 and 18 include the further limitation of downloading excess blocks to fill cache memory when not downloading blocks required by the renderer. '189 patent at cols. 17:58-61; 20:22-24. This is so that the claimed system may respond more quickly to changes in viewpoint, as when the user is selecting a viewpoint of interest instead of being

limited to pre-chosen viewpoints selected by others, *e.g.*, '189 patent at col. 10:58-60; 11:11-16, or otherwise so that the user can view the surroundings, and the data for that is on hand to be provided to the renderer. *Id.* at cols. 11:49-57; 15:59-67. Claims that depend from claims 7 and 18 further require that the download of excess blocks "comprise[] filling the memory with substantially all of the blocks surrounding a point in the terrain seen from the current viewpoint within a predetermined distance range." *Id.*, claim 9 at col. 17:66-18:3, claim 19 at col. 20:26-29. Given the context of having data on hand to allow changes in viewpoint to any new direction in which the user may choose to "fly" or may look at their surroundings, it only makes sense that the phrase, "***substantially all the blocks <u>surrounding</u> a point in the terrain seen from the current viewpoint within a predetermined distance range***" is properly construed as "***substantially all of the excess data blocks describing three-dimensional terrain on all sides (in all directions) out to a pre-established distance from a point in the terrain that is seen from the current viewpoint***." Feiner Decl. ¶ 38.

The plain meaning of "surround" suggests that the data blocks "enclose on all sides." Chang Decl., Ex. I. Indeed, the specification makes clear that this phrase requires the download of data in all directions, stating that "cache manager **74** attempts to fill cache memory **32** with a sufficient number of blocks, *such that for <u>any</u> view direction* of the current view point, all blocks **42** required by renderer **72** are stored in cache memory **32**." '189 patent at col. 12:17-20 (emphasis added); *see also* Feiner Decl. ¶ 39. In addition, the specification goes on to explain that "cache manager **74** fills cache memory **32** with the blocks within the range of the current viewpoint, *so that, for <u>any</u> direction of view* from the current viewpoint there is no need to download further blocks from server **26**." '189 patent at col. 15:63-65 (emphasis added); *see also* Feiner Decl. ¶ 39.

Skyline asks the Court to construe the term to mean "substantially all of the blocks which include data covering terrain which is within a predetermined distance range in *one or more directions* from *either the viewpoint* or a point in the terrain visible from the current viewpoint." Skyline's proposed construction first seeks to broaden the claim language so that the limitation

may be satisfied by downloading only those blocks in "one or more directions," rather than by downloading all blocks surrounding a viewpoint. Such a construction is odds with the disclosures in the specification and the plain meaning of the claim language, which clearly requires the download of blocks in all directions so that the local memory will have blocks for *any* direction, i.e., literally to view their surroundings. *E.g.*, '189 patent at cols. 11:47-57; 12:17-29, 15:63-65; Chang Decl., Ex. I; *see also* Feiner Decl. ¶ 40.

Skyline further attempts to re-write the claim language by broadening it to include blocks from "*either the viewpoint* or a point in the terrain," when the claim language does not allow any such choice but is instead directed to "blocks surrounding *a point* in the terrain seen from the current viewpoint." Re-writing claims is contrary to law, and there is no support in the claim language or the patent specification for Skyline's construction. *On Demand Machine Corp. v. Ingram Industrial, Inc.*, 442 F.3d 1331, 1340 (Fed. Cir. 2006) (stating that "the claims cannot be of broader scope than the invention that is set forth in the specification").

For at least these reasons, the Court should adopt the correct construction of "***substantially all the blocks surrounding a point in the terrain seen from the current viewpoint within a predetermined distance range***" as "***substantially all of the excess data blocks describing three-dimensional terrain on all sides (in all directions) out to a pre-established distance from a point in the terrain that is seen from the current viewpoint.***"

V.   CONCLUSION

For the foregoing reasons, Google's proposed constructions of the disputed terms of the '189 patent are correct and should be adopted by the Court.

Dated: September 29, 2006   Respectfully submitted,

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Certificate of Service

I hereby certify that, on September 29, 2006, I caused a true and accurate copy of the
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By: ____/s/ Carolyn Chang_____
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